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From: Lombardi, Marc
Sent: Tue 8/8/2017 10:31:21 PM
Subject: Leviathan Mine - Interim Combined Treatment Demonstration - Status Update

Lynda / Gary / Scott,

On behalf of Atlantic Richfield, Amec Foster Wheeler is providing the following update on the Interim Combined Acid Drainage Treatability Field Demonstration. This update is being provided in addition to our regular Weekly Activities Summary which will be provided within the next day or two and will provide a complete summary of activities for the period of July 29 through August 4, 2017.

In brief, over the period of July 29 through August 4, 2017, we continued to work through HDS Treatment Plant shakedown. Following completion of the minor engineering modifications discussed during our call on July 27th and summarized in our *Interim Combined Acid Drainage Treatability Field Demonstration Weekly Activities Summary*, dated July 28, 2017, we resumed demonstration shakedown on July 28th by bringing upper pond water into Pond 4. We resumed treatment and discharge of blended water on July 29th at 120 gpm.

The minor engineering modifications completed on July 28th which included the addition of recycled water jets into top of lime sludge mix tank resolved the issue of crusting/lime shelf buildup and the use of freshwater for flocculent makeup resolved the scaling and maintenance issues with sensitive components of the flocculent system.

Upon resumption of treatment we were operating at an acidity in the range of 2,200 to 2,800. We have been experiencing issues with sludge quality in clarifier (low % solids) resulting in having to waste larger volumes of low density sludge during the day. This is similar to observations made during the pilot test at a similar range of acidity. The team has been working to increase sludge quality through pH adjustments and influent acidity

adjustments. Once we have sludge quality dialed in, and prior to resuming treatment at higher flow rates and acidities we need to treat Pond 4 water to create additional working capacity so that we can bring down additional Upper Pond water to increase the overall acidity. We currently anticipate resuming treatment demonstration at 143 gpm by the end of this week or the beginning of next week.

Should you have any questions or comments please contact Tony Brown at (657) 529-4537 or anthony.brown@bp.com.

Thanks,

Marc

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